





The School for Symphonies

A stunning facility offers the latest technology for education and live performance

By Mel Lambert

The name suggests an implicit connection with an orchestra but, in reality, New World Symphony (NWS) is a multifaceted operation more accurately defined as a laboratory for musical education and expression. Functioning as a post-graduate institution, Miami Beach-based NWS offers a unique perspective on music and the visual arts. The operation's primary space, the visually stunning New World Center, has rapidly achieved recognition as an environment in which the finest minds in the field explore the making of music. An ultra-fast Internet2 infrastructure, installed throughout the complex, allows interactive distance-learning sessions, during which composers, musicians, and other artists can be brought into classrooms and performance areas via interactive video and audio connections.

Self-described as America's orchestral academy, NWS was established in 1987, under the artistic direction of composer and conductor Michael Tilson Thomas, as a "unique educational environment that prepares gifted graduates of distinguished music programs for leadership positions in orchestras and ensembles around the world," says NWS president/CEO Howard Herring. "Our fellowship program provides top graduates from music programs with an opportunity to enhance their musical educations with the finest professional training."

Originally housed in a theatre on Lincoln Road in South Beach, NWS undertook a long search before moving into a new 100,000-sq.-ft. space covering two city blocks on nearby 17th Street. The current site includes a 756-seat concert hall, individual practice rooms, and ensemble



The interior of the concert hall, showing the acoustical sails, which also serve as projection surfaces.

rehearsal rooms—collectively referred to as the New World Center—located adjacent to a 2.5-acre park. Renamed Exo Stage at Miami Beach SoundScape, the park features a 100'-by-70' digital video projection screen and surround-sound playback for free open-air concerts relayed from the concert hall, in addition to other events. The Knight New Media Center, on the building's third floor, contains video and audio editing suites. The 10-year design process, which included three years for construction, culminated with an inaugural concert on January 26, 2011. Total cost for the project was a reported \$160 million. The venue is also available for third-party rentals.

"New World Center offers a set of unprecedented opportunities," Herring states. "The best young orchestral musicians in the world—our Fellows—can learn to surpass themselves, while there are opportunities for the public, both inside and outside the building, to become engaged in the Fellows' journeys and feel their thrill of discovery. Everything at New World Symphony is designed to open fresh possibilities, and to keep opening them."

The primary design team comprised architect Frank Gehry, from Gehry Partners; Dr. Yasuhisa Toyota, from the Japanese firm Nagata Acoustics; and Benton Delinger and the late David Taylor, both from the US office of Theatre Projects Consultants (TPC), who oversaw design of the performance hall's interior elements, including lighting, rigging, and seating. Barbizon Lighting outfitted the hall with a combination of fixed and moving instruments, working with Theatre Projects' specifications and those of architectural lighting designer LAM Partners, based in Boston. The Dallas office of Acoustic Dimensions specified

all sound and video systems within the performance areas, in addition to some of the audio-recording capabilities. Sonitus, based in Los Angeles, oversaw sound-system design within the main hall and exterior park space, with the Dutch firm West 8 responsible for overall design of the Miami Beach SoundScape, and Pro Sound&Video, a multi-city firm with a Miami office, supplying the latter's video and sound systems.

A musical laboratory

"The original concept for the large, 30,000-sq.-ft. hall was that it should serve as a music laboratory for [New World Symphony's Fellows]," states Theatre Projects' Delinger. "It would be used as a fully equipped rehearsal room, with projectors, AV systems, and lighting, which would serve as a flexible educational tool and enable remotely located composers, conductors, and instructors to interact in real time with the students via high-speed Internet2 connections." That basic idea informed into the current space, which offers flexible audience seating and staging for various performance types, and also enables concerts to be relayed to the outside park area, creating enhanced engagement with the local community. Internet2 broadband networks connect many universities within the US, as well as organizations around the world; it runs 100 times faster than regular Internet services and is said to be ideally suited for musical interaction and education.

"A collage of suspended, overlapping acoustic baffles double as projection screen panels, which are designed to enhance orchestral performances with informational video content," adds Brian Elwell, senior consultant/VP with



Pulse - Late Night at New World Symphony features "theatrically enhanced classical music mixed into an evening-long set of DJ-spun electronica," according to NWS' website. The event makes full use of the venue's theatrical lighting and projection capabilities.

Acoustic Dimensions. "[The baffles] also provide video scenery, vocal text translations, digital-video compositions, or projected sets for musical theatre works." Acoustic Dimensions provided design services for all AV systems, "which were closely coordinated with the inspirational architecture, theatrical lighting, rigging, stage machinery, and acoustics," Elwell says.

Given its multiple uses, design and equipping of the 756-seat interactive concert hall presented a unique set of challenges. "We had to integrate Internet2 technology, 360° video projection, and advanced audio systems," Delinger continues, "thereby allowing worldwide simultaneous connectivity for distance teaching and performances. Throughout the new 106,500-sq.-ft. teaching complex, we needed to integrate leading-edge equipment, seating, and lighting design seamlessly within Frank Gehry's signature architecture, while meeting the New World Symphony's artistic and technical flexibility." A number of stage and in-the-round seating configurations accommodate different productions and classroom requirements with flat-floor and cabaret-style layouts, together with mechanical stage lifts that create various performance levels. Four satellite platforms reduce mid-concert stage resets and allow different relationships between the audience and performers. The hall's mechanical system is said to produce no discernible background noise, with a quoted acoustic rating of NC15.

The hall's five acoustically reflective curvilinear baffles, or "sails," are arrayed across the upper half of the performance space; a total of 14 Christie Roadie HD+30K video projectors are available to show specially commis-

sioned videos and performance information. Seven dual-output coolux Pandoras Box media servers handle video playback. Ceiling baffles are coated with a layer of absorbent material to attenuate high frequencies, while treatments to the walls surrounding the front audience and stage area ensure a diffuse sound throughout the hall. The Pandoras Box units, which provide the necessary blending and warping of images for the curved projection surfaces, are fed by HD video from a Grass Valley Kayak switcher; they also handle overlays of pre-produced graphic content over live feeds for the outdoor shows. "We were brought onto the team towards the end of design development," Elwell continues, "and had seven months to complete the AV design." New World Symphony and Gehry Partners were looking for a 360° canvas that could be used to display artistic content.

Other creative spaces at NWS include the 2,400-sq.-ft. SunTrust Pavilion, a multifunctional space with a flat floor, balcony, and portable 7.1-channel audio playback system; an HD video recording/production suite equipped with a Grass Valley Kayak 200 controller; and master and secondary audio control rooms, the former equipped with an Avid Icon digital console and the latter a Yamaha PCM-2000 digital console as backup. The SunTrust Pavilion serves as both the primary teaching space for the orchestra and as a space for performances, film screenings, lectures, and recordings.

"The integration of acoustic and sound system design was both comprehensive and seamless," recalls audio consultant Fred Vogler, a co-partner with Tim Boot in Sonitus AV. "From the start, we were able to coordinate



The surround-sound system for Exo Stage at Miami SoundScape resembles ballet bars.



Left: The projection booth in operation, showing support column housing Meyer 700-HP subwoofers; performances are shown using four Christie Roadie HD+35K projectors. Above: Meyer UPJ-1P loudspeakers in vertical ballet barre columns.

with the architect on room layouts, adjacencies, and shaping, as well as equipment requirements. The audio systems at New World Symphony remind me a little of Formula One racing—sophisticated and sensitive; it’s a balance between dynamic versus static mixing, which requires a lot of tiny adjustments. F1 drivers are constantly in motion, changing suspension, acceleration, and gears, etc. And although a F1 car has four tires and a steering wheel, it doesn’t mean that the average person could drive it out of a garage, much less around the race track. Similarly, in a high-performance Nagata acoustic design, such as NWS’ concert hall, small adjustments to level, positioning, and equalization go a long way.”

Designed by Nagata Acoustics, the multi-function sails are fitted with loudspeaker components specified by Sonitus and engineered by UK-based Acoustic Transducer Company (ATC). The central sail features separate left, center, and right channels, while the remaining four sails, located in pairs on either side of the auditorium, provide surround sound or discrete playback channels for multi-screen performances. Two transportable systems for the stage are available to supplement the five sails during amplified concerts.

The central sail integrates three flush-mounted ATC SCM300ASL systems with additional mid-range and high-frequency capacity; the four side sail systems feature flush-mounted SCM150ASL systems. The portable stage-mounted system comprises a double SCM300ASL cabinet with a quartet of 15" drivers facing forward, with a side-aimed double SCM110ASL cabinet on a lifting mechanism to cover side seating areas. Eight 15" ATC subwoofers are also available, together with assignable support speakers for piano and other instruments. A pair of SCM50ASL cabinets is arrayed at the back of the stage area, firing down from the ceiling above the rear seats, with a second pair located under the lighting booth. All flown and stage-mounted loudspeaker systems are powered by ATC P4 amplifiers.

Two identical DiGiCo D1 digital consoles handle front-of-house and stage-monitor mixing, and connect to the loudspeaker systems and various production areas throughout the complex via MADi-format digital links and Optocore fiber-optic I/O. “We specified Digico consoles because of their solid MADi interfaces and low ambient noise levels,” Elwell says.

The lighting system

Both fixed ETC and movable Philips Vari*Lite instruments are featured within the main hall. “Barbizon Lighting installed the first [Vari*Lite] VL1100 Series systems supplied to a US customer,” recalls Steven Cullipher, systems division manager with the firm’s Florida office. Forty-four VL1100TS ERS luminaires were

supplied—all painted white—plus eight VL1100 TI luminaires, also in white. The ETC Source Four package includes a dozen each of 5° and 10° units, twenty-four 19° units, twenty 26° units, twenty-five 36° units, and five 50° units, plus 39 Source Four PAR EAs with color frames. A dozen Altman four-cell focusing cycs and 10 Altman six-inch Zip Strips were specified, along with two Lycian SuperArc 400 followspots. City Theatrical provided a variety of accessories.

The VL1100 Series overhead moving lights were specified for the hall “since they are quieter,” Delinger says. “Because of their added flexibility, and opportunities for additional color and face lighting, New World also added several VL550 Washes.” Instead of a formal lighting grid, all overhead instruments were installed behind covers “that allow them to be raised through the ceiling for maintenance and repair,” he adds. To provide individual adjustment, several Source Fours are mounted on traditional clamps.

Supplied by A.C.T Lighting, the controllers include an MA Lighting grandMA2 full-size and a grandMA2 ultra-light console. Stefan DeWilde, NWS’ lighting designer, selected the grandMA2 because of the high degree of required system control in the hall. “The grandMA2’s user interface and bigger screens help programming efficiency [since we] can lay out everything and select fixtures much more efficiently,” he says. “We have 300 conventional fixtures and hundreds of LEDs in the atrium that run off the console,” together with 150 conventional fixtures and 75 moving lights in the hall. “Nothing else but the grandMA2 made sense, since we’re running multiple networks—ETCNet2, Art-Net, and MA-Net2—as well as Pandoras Box HD media servers.” The grandMA2 also controls hazers, scent generators, and four RGB laser projectors, when required.

Miami Beach SoundScape

Designed by West 8, the 2.5-acre SoundScape outdoor viewing area adjacent to the New World Center features a 7,000-sq.-ft. WallCast video projection wall with a surround-sound-capable audio system housed in tube-shaped structures that resemble a pair of enormous curving ballet bars. “Our intention was to bring the high-quality acoustics from inside the concert hall to the outdoor South Beach audiences,” Vogler explains. He worked with a Meyer Sound Constellation electronic acoustic system on the *Star Wars: In Concert* tour—it provided a portable acoustic shell for the symphony orchestra playing live to scenes from the landmark films—and opted for a similar solution here.

Twenty-four microphones inside the hall serve as sources for the Constellation system, which digitally recreates an electronic model of the environment’s natural acoustics to enhance a conventional surround-sound playback for the WallCast audience. “Our goal of bringing

an indoor concert experience to people picnicking outside in the park was accomplished using loudspeakers oriented in varying angles,” Vogler says, “with the Constellation simulating reflections off the hall walls.” Normally, a Constellation system is used to augment a room’s existing acoustics. “What we did, uniquely, in SoundScape was to create a concert hall-like acoustic environment outdoors,” adds Boot.

An LCR planter system located

beneath the video screen comprises three Meyer Sound MSL-4 loudspeakers and six 700-HP subwoofers, arranged in an end-fire cardioid configuration in the center, and two MSL-4 loudspeakers for left and right. Left and right silo systems each house nine Meyer M’elodie loudspeakers and two 600-HP subwoofers. The surround-sound barre system comprises Meyer M’elodie, UPJ-1P, and M1D-Sub cabinets mounted inside horizontal and vertical pipes, with protection

grilles designed to withstand the heavy rain and winds (up to 160mph) encountered during hurricane season. Left and right horizontal columns each contain 26 M’elodie loudspeakers, while the vertical/uprights contain combinations of UPJ-1Ps and M1D-Subs. The video projection tower houses two additional UPQ-1P speakers, plus three 700-HP subwoofers; a quartet of media hydrants each houses a single UPJunior loudspeaker. Signal processing is via a Meyer D-Mitri digital audio platform, with remote loudspeaker monitoring handled by the firm’s RMS software.

All AV systems for the SoundScape were supplied by Pro Sound&Video, with Brian Bolly, Meyer Sound’s cinema and live sound project manager, collaborating with Sonitus and PSV on project design and fulfillment. Pro Sound CEO Rod Sintow was given principal design responsibilities for the video projection system, which floods the 7,000 square foot screen with HD images from four Christie Roadie HD+35K projectors.

“This extraordinary building is the beginning of a wonderful adventure and exploration,” concludes Michael Tilson Thomas. “Not only are we marking a new era for this organization and giving our musicians an unrivalled facility in which to learn and achieve their potential, but we are also inviting everyone to experience classical music in a new kind of space—one that is designed to engage and to energize, and that will move people from around the world to think about music in new ways.”

Mel Lambert has been intimately involved with production industries on both sides of the Atlantic for more years than he cares to remember. He is now principal of Media&Marketing, a Los Angeles-based consulting service for the professional audio industry, and can be reached at mel.lambert@MEDIAandMARKETING.com; +1/818.558-3924.

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